UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Alexandria Division

PLASTIPAK PACKAGING, INC., Plaintiff, v. NESTLÉ WATERS NORTH AMERICA, INC., *operating as* BLUETRITON BRANDS, INC., Defendant.	)	Civil Action No. 1:20-cv-1288 (RDA/IDD)

MEMORANDUM OPINION AND ORDER

This matter comes before the Court on Defendant Nestlé Waters North America, Inc.'s Motion for Claim Construction (Dkt. 147).[1] This Court has dispensed with oral argument as it would not aid in the decisional process. *See* Fed. R. Civ. P. 78(b); Local Civil Rule 7(J).[2] This matter has been fully briefed and is now ripe for disposition. Considering the Motion together with Defendant's Memorandum in Support (Dkt. 148), Plaintiff Plastipak Packaging, Inc.'s

[1] Plaintiff has also filed a Motion for Summary Judgment (Dkt. 139). However, the Court must resolve claim construction issues before deciding on summary judgment. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 996 n.7 (Fed. Cir. 1995) (Mayer, J., concurring) ("A claim . . . is first construed before deciding infringement."). The Court will provide an opportunity for both parties to file and/or renew motions for summary judgment in light of this Memorandum Opinion and Order.

[2] The Court notes that Defendant had requested a hearing on claim construction (also known as a *Markman* hearing). *See* Dkt. 149. This Court decided to take the issue under advisement on the papers only. *See* Dkt. Entry dated Nov. 13, 2023. The Court is not "required, in order to issue a claim construction, to conduct a Markman hearing. 'Markman does not require a district court to follow any particular procedure in conducting a claim constriction. It merely holds that claim construction is the province of the court, not a jury.'" *Minute Man Anchors, Inc. v. Oliver Techs., Inc.*, 2007 WL 6140029, at *2 (W.D.N.C. May 23, 2007) (quoting *Ballard Med. Prod. v. Allegiance Healthcare Corp.*, 268 F.3d 1352, 1358 (Fed. Cir. 2001)).

Memorandum in Opposition (Dkt. 159), Defendant's Reply (Dkt. 161), and Plaintiff's Sur-Reply (Dkt. 165), the Court has construed the claims at issue and DENIES Defendant's Motion for Claim Construction, which seeks a particular construction, for the reasons that follow.

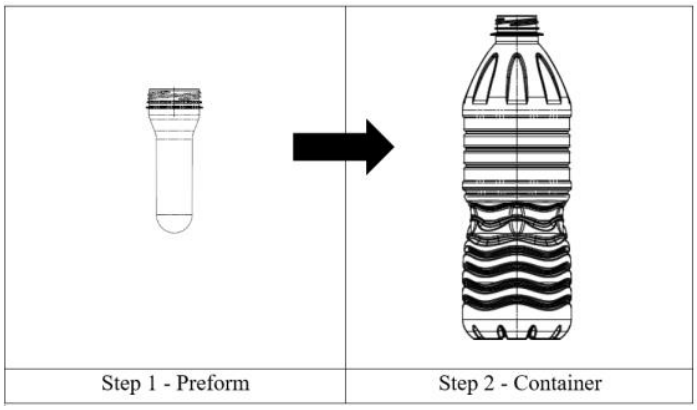
I. BACKGROUND

A. Parties

Plaintiff Plastipak invents, develops, manufactures, and sells containers and packaging for consumer products, including bottled water and other beverages. Dkt. 52 ¶ 7 (Second Amended Complaint). Plaintiff owns 500 U.S. patents and produces each year over 40 billion plastic preforms, as defined *infra*, and containers. *Id.* ¶¶ 8-9. Defendant Nestlé (operating under BlueTriton Brands, Inc.) also manufactures plastic preforms and containers used for its bottled water products. *Id.* ¶ 14.

B. Producing Plastic Water Bottles

Plastic water bottles are generally manufactured from polyethylene terephthalate ("PET"). *Id.* ¶ 15. The first step in manufacturing a PET bottle "typically involves converting PET resin into a preform." *Id.* A preform is "a work-in-process product for the final plastic container," or in other words, the starting plastic molded shape that will then become the bottle. *Id.* Preforms may be created through injection molding, compression molding, or other known industry methods. *Id.* Ultimately, to create a plastic bottle, preforms are stretched and blow-molded into the desired shape of the final product. *Id.* ¶¶ 17, 20. The diagram below shows a preform and the resulting plastic water bottle. *Id.*



The final shape of a plastic water bottleneck (also known as the "neck finish") is molded during the manufacturing process. *Id.* ¶ 18. A plastic bottleneck inherently contains three structural components: (1) threads, (2) a tamper evident formation, and (3) a support flange. *Id.* ¶ 20. The following diagram depicts the structural components of a plastic bottleneck. *Id.*

C. Disputed Patents

Plastipak alleges that Nestlé infringed six of its patents: U.S. Patent Nos. 9,139,326 ("the '326 Patent"); 9,403,310 ("the '310 Patent"); 10,214,311 ("the '311 Patent"); 10,266,299 ("the '299 Patent"); 10,457,437 ("the '437 Patent"); and 11,560,250 ("the '250 Patent"). *Id.* ¶ 1. All of these patents relate to "light-weighting," which is the practice of reducing the amount of plastic in water bottles. *Id.* Plastipak's method of light-weighting entails producing a plastic water bottle with a lighter neck finish that retains its inherent structural components (threads, tamper evident formation, and a support flange). *Id.* ¶ 23. The at-issue patents describe Plastipak's water bottle

and preform as including threads, a support flange having an upper and lower surface, a tamper-evident formation, and a dispensing opening at the top of the neck portion. Dkt. 1, Exs. 3-4, 9, 11-12; Dkt. 52, Ex. 6.

Defendant challenges Plaintiff's patents with respect to each of the three structural components, and its arguments can be separated into two categories: (1) those relating to height and (2) those relating to weight. Dkt. 148 at 24. For purposes of this Court's analysis, however, the Court need not distinguish between the different components, as all of the challenged claim terms (the exact language of the patent claims at issue) focus on and include the disputed words: "or less." The following table outlines the parties' disputes regarding the claims. *Id.* at 24-25; Dkt. 159 at 1.

Claim Terms	**Nestlé's Construction**	**Nestlé's Alternate Construction**	**Plastipak's Construction**
"[V]ertical distance from the top of the dispensing opening to the lower surface of the support flange, including the threads and the tamper-evident formation, is 0.500 inches or less."	"[V]ertical distance from the top of the dispensing opening to the lower surface of the support flange is 0.500 inches or less, including zero."	"[V]ertical distance from the top of the dispensing opening to the lower surface of the support flange is 0.500 inches to 0.450 inches."	Terms include an inherent lower value.
"[V]ertical distance from the top of the dispensing opening to the lower surface of the support flange is 0.450 inches or less."	"[V]ertical distance from the top of the dispensing opening to the lower surface of the support flange is 0.450 or less, including zero."	"[V]ertical distance from the top of the dispensing opening to the lower surface of the support flange is 0.450 inches."	
"[V]ertical distance from the lower surface of the support flange to a top of the dispensing opening, including the threads, is 0.450 inches or less."	"[V]ertical distance from the top of the dispensing opening to the lower surface of the support flange is 0.450 or less, including zero."	"[V]ertical distance from the top of the dispensing opening to the lower surface of the support flange is 0.450 inches."	

"[V]ertical distance from lower surface of the support flange to a top of the dispensing opening is 0.450 inches or less."	"[V]ertical distance from the top of the dispensing opening to the lower surface of the support flange is 0.450 inches or less, including zero."	"[V]ertical distance from the top of the dispensing opening to the lower surface of the support flange is 0.450 inches."	
"[V]ertical distance from a lower surface of the support flange to a top of the neck portion is 0.450 inches or less."	"[V]ertical distance from the top of the dispensing opening to the lower surface of the support flange is 0.450 inches or less, including zero."	"[V]ertical distance from the top of the dispensing opening to the lower surface of the support flange is 0.450 inches."	
"[V]ertical distance from the top of the dispensing opening to a lower surface of the tamper-evident formation is 0.30 inches or less."	"[V]ertical distance from the top of the dispensing opening to a lower surface of the tamper evident formation is 0.30 inches or less, including zero."	"[V]ertical distance from the top of the dispensing opening to a lower surface of the tamper evident formation is 0.30 inches."	
"[V]ertical distance from [a/the] lower surface of the tamper evident formation to [a/the] top of the dispensing opening is 0.30 inches or less."	"[V]ertical distance from the top of the dispensing opening to a lower surface of the tamper evident formation is 0.30 inches or less, including zero."	"[V]ertical distance from the top of the dispensing opening to a lower surface of the tamper evident formation is 0.30 inches."	Terms include an inherent lower value.
"[V]ertical distance from a lower surface of the tamper-evident formation to a top of the neck portion is 0.30 inches or less."	"[V]ertical distance from the top of the dispensing opening to a lower surface of the tamper evident formation is 0.30 inches or less, including zero."	"[V]ertical distance from the top of the dispensing opening to a lower surface of the tamper evident formation is 0.30 inches."	
"[W]eight of the neck portion from the lower surface of the support flange to a top of the dispensing opening is 3.0 grams or less."	"[W]eight of the neck portion from the lower surface of the support flange to a top of the dispensing opening is 3.0 grams or less, including zero."	"[W]eight of the neck portion from the lower surface of the support flange to a top of the dispensing opening is 3.0 grams to 2.0 grams."	

"[W]eight of the neck portion is 2.3 grams or less."	"[W]eight of the neck portion [from the lower surface of the support flange to a/the top of the dispensing opening] is 2.3 grams or less, including zero."	"[W]eight of the neck portion [from the lower surface of the support flange to a/the top of the dispensing opening] is 2.3 grams to 2.0 grams."	
"[W]eight of the neck portion from the lower surface of the support flange to [a/the] top of the dispensing opening is 2.3 grams or less."	"[W]eight of the neck portion [from the lower surface of the support flange to a/the top of the dispensing opening] is 2.3 or less, including zero."	"[W]eight of the neck portion [from the lower surface of the support flange to a/the top of the dispensing opening] is 2.3 grams to 2.0 grams."	
"[W]eight of the neck portion is 2.0 grams or less."	"[W]eight of the neck portion is 2.0 grams or less, including zero."	"[W]eight of the neck portion is 2.0 grams."	

D. Procedural History

Plaintiff Plastipak initiated this patent infringement lawsuit against Defendant on October 30, 2020 (Dkt. 1), and filed the operative Second Amended Complaint on April 26, 2023. Dkt. 56. Two separate and related motions are currently pending in this case. On October 24, 2023, Plaintiff moved for Summary Judgment. Dkt. 139.

Three days later, on October 27, 2023, Defendant filed a Motion for Claim Construction (Dkt. 147). Defendant then filed its Opposition to the Motion for Summary Judgment on November 7, 2023 (Dkt. 154), while Plaintiff filed its Opposition to the Motion for Claim Construction on November 13, 2023 (Dkt. 159). Plaintiff filed its Reply in Support of Summary Judgment on November 13, 2023. Dkt. 160. Defendant filed its Reply in Support of Claim Construction on November 20, 2023 (Dkt. 161), to which Plastipak filed a Sur-Reply on December 4, 2023 (Dkt. 165). On January 8, 2024, Magistrate Judge Ivan D. Davis held a settlement

conference, which did not result in settlement between the parties. *See* Dkt. Entry dated January 8, 2024. On May 16, 2025, Plaintiff filed a Request to Reset the Final Pretrial Conference. Dkt. 178.[3] On May 19, 2025, the Court ordered a status conference be scheduled for June 4, 2025, to allow parties to propose trial dates. Dkt. 185. On June 4, 2025, the Court held a status conference with both parties present, and a jury trial was set for November 3, 2025. Dkts. 198, 199.

II. LEGAL STANDARD[4]

Patent construction "is exclusively within the province of the court." *Markman v. Westview Instruments, Inc.* (*Markman II*), 517 U.S. 370, 372 (1996). The same principle applies even when the claim construction inquiry involves subsidiary factfinding. *Teva Pharms. USA, Inc. v. Sandoz Inc.*, 574 U.S. 318, 326 (2015) (explaining that "the ultimate issue of the proper construction of a claim should be treated as a question of law" and "also recogniz[ing] that in patent construction, subsidiary factfinding is sometimes necessary"). In construing patent claims, the district court operates independently and is not required to accept the parties' arguments on claim construction. *Sony Corp. v. Iancu*, 924 F.3d 1235, 1240 (Fed. Cir. 2019). Rather, the court has discretion to adopt a definition that "best fits with the claim language and specification." *Homeland*

[3] As the Court has previously noted, this case had been stayed due to the pendency of a related appeal. Dkt. 185. Unfortunately, although the Court entered an Order directing that the stay be lifted, an administrative error in the Clerk's Office resulted in the case still being subject to a stay designation for purposes of electronic tracking of pending motions. *Id.* This error unfortunately left the parties' pending motions unresolved. *Id.* The Court has now taken steps to correct and prevent this error and is moving with deliberate speed to resolve this case.

[4] For the purposes of evaluating patent cases, the Court views Federal Circuit precedent in addition to relevant Fourth Circuit precedent. The Federal Circuit has "exclusive jurisdiction to review cases which arise under the patent laws." *Biotechnology Indus. Org. v. Dist. of Columbia*, 496 F.3d 1362, 1367 (Fed. Cir. 2007). "Therefore, Federal Circuit precedent is authoritative on questions of federal patent law." *City State Ent., LLC v. Lemay*, 2014 WL 12603504, at *2 n.3 (E.D. Va. Sept. 24, 2014).

Housewares, LLC v. Whirlpool Corp., 865 F.3d 1372, 1376 (Fed. Cir. 2017). Accordingly, the court may "adopt a definition not proposed by either party." *Id.*

There exists "no magic formula or catechism" to resolve claim construction issues. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1324 (Fed. Cir. 2005) (en banc) (citation omitted). Instead, claim construction is a fluid process in which the court is neither "barred from considering any particular sources or required to analyze sources in any specific sequence, so long as those sources are not used to contradict claim meaning that is unambiguous in light of the intrinsic evidence." *Id.* Overall, "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Takeda Pharm. Co. v. Zydus Pharms. USA, Inc.*, 743 F.3d 1359, 1363 (Fed. Cir. 2014) (citation omitted). In establishing claim construction, the Court should apply a functional approach to "capture the essence" of the invention. *Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1370 (Fed. Cir. 2008); *see Par Pharm., Inc. v. Hospira, Inc.*, 835 F. App'x 578, 581 (Fed. Cir. 2020) (noting the same).

In conducting this analysis, the Court analyzes the invention applying a "person of ordinary skill in the art" standard (a "POSITA"). *See Phillips*, 415 F.3d at 1314 (noting that determining the meaning of a claim is done from the perspective of person of skill in the art). The parties do not dispute that a POSITA in this case is "a person with a B.S. degree related to the field and at least two years of experience designing preforms and containers." Dkt. 148 at 13. Accordingly, the Court adopts that undisputed definition for its analysis.

III. CLAIM CONSTRUCTION ANALYSIS[5]

[5] In this case, the claims at issue all have the same words ("or less"). Accordingly, the Court will handle the claim construction for all of the claims together, rather than constructing each claim individually.

Before turning to the claim construction issues here, the Court will assess the manner in which the Court should conduct the claim construction analysis. Applying those principles, it is clear that the term "or less" does not include zero or negative values and that Defendant's other proposed constructions are incorrect.

A. Ordinary Meaning Through Intrinsic and Extrinsic Evidence

In determining the proper construction of a claim, the court has numerous sources that it may properly utilize for guidance. "These sources include both intrinsic evidence (*e.g.*, the patent specification and file history) and extrinsic evidence (*e.g.*, expert testimony)." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, *i.e.*, the patent itself, including the claims, the specification and, if in evidence, the prosecution history. *See Markman*, 52 F.3d at 979. "Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language." *Vitronics Corp.*, 90 F.3d at 1582. Intrinsic evidence is generally evaluated in the following order of descending priority: the claim language, the patent specification, and then the prosecution history. *Trs. of Columbia Univ. v. Symantec Corp.*, 811 F.3d 1359, 1362 (Fed. Cir. 2016) (noting that a claim construction analysis should start by considering the language of the claims themselves, before looking at the specification, and then examining the patent's prosecution history). These sources, together, provide courts with the primary—and most important—tools of interpretation for claim construction. *Phillips*, 415 F.3d at 1314-17 (holding that intrinsic evidence is of primary importance in claim construction).

To be sure, a court's "starting point in claim construction is the words of the claims themselves." *Glaxo Wellcome, Inc. v. Genentech, Inc.*, 136 F. Supp. 2d 316 (D. Del. 2001) (citing

Vitronics Corp., 90 F.3d at 1582); *see also Phillips*, 415 F.3d at 1314 ("[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms."). An objective standard is used to guide the interpretation of the words of the claim. *Phillips*, 415 F.3d at 1313 (noting that "an objective baseline" is used in claim interpretation). In applying an objective baseline, courts typically consult the "ordinary and customary meaning" of the disputed terms to determine the construction of a patent claim. *Id.* at 1313.[6] Courts should then proceed by recognizing that patents are not written for laypersons, but for people knowledgeable in the field of invention. *See Phillips*, 415 F.3d at 1314 (noting that determining the meaning of a claim is done from the perspective of person of skill in the art). Hence, the ordinary meaning of a term refers to one which is understood by a person of ordinary skill in the art at the time of the invention.[7] *Phillips*, 415 F.3d at 1314 (noting that determining the meaning of a claim is done from the perspective of person of skill in the art); *see also Hoechst Celanese Corp. v. BP Chems. Ltd.*, 78 F.3d 1575, 1578 (Fed. Cir. 1996) ("A technical term used in a patent document is interpreted as having the meaning that it would be given by persons experienced in the field of the invention, unless it is apparent from the patent and the prosecution history that the inventor used the term with a different meaning." (internal citations omitted)). The POSITA should read and understand the "claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent." *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998).

---

[6] Customary refers to the "customary meaning" of the words "in the [particular art] field." *Home Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1358 (Fed. Cir. 2004).

[7] The time of the invention is the effective filing date of the patent. *See* Chisum on Patents § 3.08 ("A general rule in patent law is that the date of invention of the applicant or patentee for purposes of novelty and anticipation is presumed to be the date he files a complete patent application in the Patent and Trademark Office disclosing the invention."); *see also Ecolochem, Inc. v. S. California Edison Co.*, 227 F.3d 1361, 1371 (Fed. Cir. 2000) (noting that there is a rebuttable presumption that the filing date of a patent is its invention date).

Accordingly, the courts should not view the challenged claims in isolation but rather as an integrated part of the patent. *Markman v. Westview Instruments, Inc.* (*Markman I*), 52 F.3d 967, 978 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). "In some cases, the ordinary meaning of claim language as understood by a [POSITA] may be readily apparent even to lay judges." *Phillips*, 415 F.3d at 1314. If the ordinary meaning is clear and widely accepted, the judge may simply apply that definition.[8] On the other hand, where idiosyncratic terms are used, the judge looks to "those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean." *Id.* (citation omitted).

Next, a court should "review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning." *Vitronics Corp.*, 90 F.3d at 1582. The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication. *Markman I*, 52 F.3d at 979 (noting that "the [specification] description may act as a sort of dictionary" which helps explain the invention).

Finally, a "court [may] also consider the patent's prosecution history, if it is in evidence." *Id.* at 980. This history contains the complete record of all the proceedings before the United States Patent and Trademark Office (the "USPTO"), including any express representations made by the applicant regarding the scope of the claims. As such, the record before the USPTO is often of critical significance in determining the meaning of the claims. *See Southwall Tech., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995) ("The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during

[8] When the ordinary meaning of a word is clear to lay judges, a general-purpose dictionary may be helpful. *Phillips*, 415 F.3d at 1314 ("[A] judge who encounters a claim term while reading a patent might consult a general purpose or specialized dictionary to begin to understand the meaning of the term, before reviewing the remainder of the patent.").

prosecution." (citations omitted)).

Beyond intrinsic evidence, courts exercise discretion to consider extrinsic evidence in the context of intrinsic evidence. *Phillips*, 415 F.3d at 1314, 1319. "In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence." *Vitronics Corp.*, 90 F.3d at 1583. However, "courts are permitted to consider extrinsic evidence, such as expert testimony, dictionaries, and treatises . . . [but] such evidence is generally of less significance than the intrinsic record." *Takeda Pharm. Co. v. Zydus Pharms. USA, Inc.*, 743 F.3d 1359, 1363 (Fed. Cir. 2014); *see also Phillips*, 415 F.3d at 1319 (noting that expert testimonies, dictionaries, and treatises are examples of the extrinsic evidence typically consulted by the court). Such evidence may help the courts discern the true meaning of the disputed claims. *Phillips*, 415 F.3d at 1318.[9] Accordingly, to the extent extrinsic evidence is useful, courts should rely on such evidence while being cognizant of its inherent flaws. *Id.* at 1319.

B. Construction of "Or Less"

As mentioned *supra*, the term "or less" appears throughout the challenged patent claims, relating to both the height and weight dimensions of the three components of a plastic bottleneck.[10] Both parties dispute the proper construction of "or less" before this Court and propose their own

[9] The Federal Circuit has explained that extrinsic evidence may be less reliable because (1) extrinsic evidence is not a part of the patent; (2) extrinsic evidence may not be created at the time the patent was created; (3) extrinsic evidence may not be written for a POSITA; (4) extrinsic evidence possibly suffers from bias; and (5) extrinsic evidence undermines the public notice function of patents. *Phillips*, 415 F.3d at 1318.

[10] For instance, the '326 patent states that embodiments of preforms and containers may have a neck portion that weighs "3.0 grams or less," while the '311 patent sets a vertical distance from the lower surface of the tamper-evident formation to the top of the dispensing opening as "0.30 inches or less." Dkt. 1, Exs. 1, 9.

obviously partisan alternative constructions. At issue is whether, to a POSITA, the "or less" term indicates (1) that the claims cover neck heights and neck weights at or near zero (as proposed by Nestlé) or (2) that the claims have some inherent lower limit because neck heights and neck weights at or near zero are impossible to achieve (as proposed by Plastipak). And, if the POSITA would find that there is some inherent lower limit, whether Defendant has correctly identified those inherent lower limits (Nestlé's alternative construction). The Court agrees with Plaintiff that the term "or less," should be understood, from the perspective of a POSITA, to include an inherent lower boundary, but rejects Defendant's proposed lower limits. The Court further establishes the claim should be constructed in a manner that the inherent lower boundary is what is physically attainable.

1. "Or Less" Does Not Include a Zero Value

Defendant Nestlé contends that the term "or less" is open-ended because, without another limiting value, the claim language can include values approaching zero or zero itself. Dkt. 148 at 1, 12, 25. Defendant specifically argues that based on a plain and ordinary reading of "or less," the Court should construe the term as including a zero value. The Court disagrees.

At first glance, the words "or less" seem to provide no lower bound, instead comprising values up to and including zero, and potentially even including negative numbers. But, the term "or less" should not be viewed in isolation but rather as an integrated part of the patent. *See Multiform*, 133 F.3d at 1477 ("[The] claim term [should be understood] not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent."); *Markman I*, 52 F.3d at 978 (noting the same). And here, the claims in the asserted patents consistently describe a plastic container as including three structural components: (1) a support flange, (2) a tamper evident formation, and (3) at least one thread. *See, e.g.*, Dkt. 1, Ex. 3, col. 8;

Id., Ex. 4, col. 7; *Id.*, Ex. 9, col. 8; *Id.*, Ex. 11, col. 8; *Id.*, Ex. 12, col. 8; Dkt. 52, Ex. 6, col. 8. Thus, any claim construction must take into account not only the measurements listed but also the structural components of the container. In that vein, the term "or less" must be understood to have a minimum measurement that still allows for the existence of *all* of the structural parts of the container. A zero or negative measurement would make this impossible; that is, a component with a measurement of zero would cease to exist, placing the container outside of the technical framework of the patent. Defendant actually concedes that a POSITA would understand that a value of zero is impossible to achieve and therefore not interpret the patent to include such a value. Dkt. 148 at 15 (noting that experts agree that "neck heights and neck weights at or near zero . . . [are] nonsensical and impossible to achieve" (internal parenthetical and quotation marks omitted)). Accordingly, per the plain and ordinary meaning of the claim, the Court finds that "or less" cannot include a zero (or negative) value.

The patents' specifications also support this conclusion. The specifications for the patents use descriptive words implying that these structural components have an accompanying weight or height dimension. *See, e.g.*, Dkt. 1, Ex. 3, col. 2, ll. 37-39 (describing the tamper evident formation as "extend[ing]" from the "upper" and "lower" surface of the support ring). Moreover, the patents' accompanying drawings confirm the existence of these structural components. *See* Dkt. 1, Ex. 3, sheet 3, fig. 6; *id.*, Ex. 4, sheet 3, fig. 6. Overall, the existence of these structural components confirms that a value of zero is inherently impossible to achieve—because there would be no support flange, no tamper evident formation, and no threads.

The Court finds that the existing intrinsic evidence regarding "or less," understood from the perspective of a POSITA, cannot include a value of zero. Accordingly, intrinsic evidence provides the Court with the necessary information required for the Court to construe the claim and

interpret the meaning of "or less," and so the Court need not look at extrinsic evidence here. *See Vitronics Corp.*, 90 F.3d at 1583 ("In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence.").

Nonetheless, a review of the extrinsic evidence only supports the Court's finding that "or less" does not include a value of zero or below. Both Plaintiff's and Defendant's expert witnesses confirm the existence of an inherent bottom limit to the words "or less." *See* Dkt. 148, Exs. A, B, D-N (excerpts of expert reports and depositions of Dr. Brett Ellis, Edward V. Morgan, Richard Darr, and Ottmar Brandau); *see* Dkt. 159, Exs. 13, 15 (excerpts of depositions of Ottmar Brandau and Edward V. Morgan); *see also Phillips*, 415 F.3d at 1319 (noting that expert testimonies, dictionaries, and treatises are examples of extrinsic evidence typically consulted by the court). Specifically, during his deposition, Plaintiff's expert, Mr. Brandau, testified that there is an inherent lower boundary to bottleneck dimensions because it is "impossible to make something that is zero," given the physical limit to how close the three structural components (support flange, tamper evident formation, threads) can be spaced together. Dkt. 159, Ex. F at 136-37. Mr. Brandau further asserts that there must be a non-zero lower limit to "or less" because the three structural elements require vertical space. *Id.*, Ex. L ¶¶ 15-19. Similarly, Defendant's expert, Dr. Ellis, notes in his deposition that "[a] POSITA would understand that it would be nonsensical for these particular dimensions to be zero," arguing that a skilled artisan expects a lower limit for each claimed dimension to be something greater than zero." *Id.*, Ex. E ¶ 1115. Thus, the Court finds strong support in the extrinsic evidence indicating that the ordinary meaning of "or less" from the perspective of a skilled artisan cannot be zero. *Phillips*, 415 F.3d at 1318.

Accordingly, the Court declines to accept Defendant Nestlé's first proposed construction

of the claims. In sum, the Court finds that the construction of the claim of "or less" cannot and thus, does not, include the value of zero or values approaching zero that are impossible to square with the construction of the neck finish.

ii. Defendant's Alternative Construction Fails

The Court next addresses Defendant's alternative constructions for the claim terms. In this regard, Defendant essentially seeks to impose its own numerical ranges that function as a bottom-limit measurement of each component. Defendant thus seeks to eliminate the words "or less" altogether—making the provided measurements of the patents the *only* possible measurements of the patent. In other words, Defendant invites the Court to remove "or less" from Plastipak's claim terms and replace that term with Defendant's bottom-limit measurements or provide no measurement range at all, only an exact value. *See supra* at 4-6. Yet, Defendant fails to provide an explanation *why* the Court should adopt the exact values or ranges suggested in their alternative constructions. *See* Dkt. 148 at 1-29.

The absence of any explanation for Defendant's proposed values suggests to the Court that those values were selected simply because they would result in a finding of no infringement. Defendant's proposed numerical ranges thus represent exactly the type of arbitrary selection of values rejected by the Federal Circuit. *3form, Inc. v. Lumicor, Inc.*, 678 F. App'x 1002, 1007 (Fed. Cir. 2017) (disagreeing with the district court's decision to limit the term to a mathematical requirement by "[p]lucking [a value] out of a range of possibilities). Indeed, the Court is unable to find any support from the patent claims and specifications to substantiate Defendant's proposed constructions. *See, e.g.*, Dkt. 1, Exs. 3-4, 9, 11-12; Dkt. 52, Ex. 6; Dkt. 148, Exs. A, E, H, M-N; Dkt. 159, Exs. 13-14. Accordingly, in the absence of any justification for Defendant's proposed limitations, the Court declines to adopt Defendant's proposed alternative constructions.

iii. The Lower Limit of "or less"

Finally, Defendant argues that, even if the Court rejects its proposed constructions, the Court should explicitly define the inherent lower boundary for the term "or less," if the Court finds that there is one. Defendant asserts that a precisely defined lower bound is necessary to adequately define the scope of the claims. This Court disagrees.

Courts have consistently held that it is not necessary that the lower boundary of a measurement be explicitly defined for claim construction purposes. *Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1376-77 (Fed. Cir. 2007) (allowing open-ended claim terms); *see also Regents of the Univ. of California v. Affymetrix, Inc.*, 2018 WL 4216361, at *30-31 (S.D. Cal. 2018) (refusing to impose an inherent upper limit to a claim requiring a specific signal to be "at least 3 fold greater" than the signal of another antibody). "[W]hen a claim term is expressed in general descriptive words, [courts should] not ordinarily limit the term to a numerical range that may appear in the written description or in other claims." *Conoco, Inc. v. Energy & Env't Int'l, L.C.*, 460 F.3d 1349, 1357-58 (Fed. Cir. 2006); *see also Niazi Licensing Corporation v. St. Jude Medical S.C., Inc.*, 30 F.4th 1339, 1347 (Fed. Cir. 2022) (noting that courts are not required to define claims with greater mathematical precision than is needed to answer the indefiniteness inquiry). Here, it is abundantly clear that "or less" provides some inherent lower bound, given that common sense and experts on both sides of this case agree that the values cannot be zero. The Court need not, however, determine the exact mathematical numeral for that lower bound. Rather, the lower bound is defined by the smallest possible construction of the container with all of the integral parts (support flange, tamper evident formation, and threads) as per the patent, and such information is sufficient to establish an inherent lower bound. Accordingly, the Court will not construe the claims to impose, and will not itself impose, a mathematically precise lower limit.

Accordingly, the Court declines to explicitly construe the lower boundary of "or less."

IV. INVALIDITY ANALYSIS

The Court now turns to whether the claims, as constructed, make out a valid patent. Defendant argues that the claims, so construed, are invalid because they are indefinite. Applying the relevant Federal Circuit authority, this Court disagrees.

A. Invalidity Standard

After a claim has been constructed, courts determine whether the patent is valid. *See Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1351 (Fed. Cir. 2001) (noting that "the claim scope is first determined" and then "an invalidity analysis" is conducted). "A patent [is] presumed valid," and "[t]he burden of establishing the invalidity of a patent . . . rest[s] on the party asserting such invalidity." 35 U.S.C. § 282(a); *see also Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 95 (2011) (noting that the party challenging the patent bears the burden of proving invalidity by clear and convincing evidence).

35 U.S.C. § 112 sets out "three main requirements that a patent must meet to be valid[:] definiteness, enablement, and written description."[11] *3rd Eye Surveillance, LLC v. United States*, 157 Fed. Cl. 673, 677 (2022); *see also Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1354 (Fed. Cir. 2015) (en banc in part) (noting the same). In other words, the patent must include a "written description of the invention, and of the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any [POSITA]" to replicate and use the

[11] The parties here disagree whether invalidity under enablement and written description are issues that must be resolved at claim construction. This Court finds that these are issues that are best left for summary judgment or decided by a jury. *See, e.g.*, *Dow Chemical Co. v. Nova Chemicals Corp. (Canada)*, 809 F.3d 1223, 1226 (Fed. Cir. 2015) ("We have consistently permitted courts to submit legal questions which contain underlying factual issues, like . . . enablement . . . to the jury."); *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323 F.3d 956, 962-63 (Fed. Cir. 2002) ("Compliance with the written description requirement is a question of fact.").

invention. 35 U.S.C. § 112(a). A valid patent "must both describe the claimed invention adequately and enable its production and use." *Alcon Rsch. Ltd. v. Barr Lab'ys, Inc.*, 745 F.3d 1180, 1188 (Fed. Cir. 2014).

A patent is therefore "invalid for indefiniteness if its language, when read in light of the specification and the prosecution history, 'fail[s] to inform, with reasonable certainty[,] those skilled in the art about the scope of the invention.'" *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1377 (Fed. Cir. 2015) (alteration in original) (quoting *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014)); *see also Morton Int'l, Inc. v. Cardinal Chem. Co.*, 5 F.3d 1464, 1470 (Fed. Cir. 1993) ("Whether a claim is invalid for indefiniteness requires a determination whether those skilled in the art would understand what is claimed when the claim is read in light of the specification."). Under the *Nautilus* standard, the only relevant inquiry for indefiniteness is whether a POSITA can discern, with reasonable certainty, the scope of the claims in the patent. *Nautilus*, 572 U.S. at 901. In determining indefiniteness, a court must "delica[tely] balance" two competing considerations. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 741 (2002). On one hand, the inherent limitations of language allow for some uncertainty to "ensur[e] the appropriate incentives for innovation." *Id.* Courts must recognize that patents are "not addressed to lawyers, or even to the public generally," but rather those of ordinary skill in the arts. *Nautilus*, 572 U.S. at 908. On the other hand, a patent "must be precise enough to afford clear notice of what is claimed" to prevent a "zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims." *Id.* at 909-10 (citations omitted). Such clear notice is required to prevent vague and ambiguous patent claims. *Id.* at 910.

B. Analysis

Defendant asserts that, if the disputed "or less" term is construed to have an inherent lower

boundary, then the patent claims are invalid for indefiniteness because the patent claims do not inform a POSITA how to approach the lower limit. Defendant further argues that the open-ended claim ranges fail under the *Nautilus* standard because they fail to provide clear notice of what is being claimed. *Nautilus*, 572 U.S. at 906-07. Defendant's analysis is flawed in this regard.

Open-ended claim ranges are permitted under *Nautilus*, and numerous courts, including the Federal Circuit, have held the same. *See, e.g.*, *Andersen Corp.*, 474 F.3d at 1376-77 (stating that open-ended claims are allowed based on the specific facts and history of an invention); *United Access Technologies, LLC v. AT & T Corp.*, 757 F. App'x. 960, 968-71 (Fed. Cir. 2019) (explaining that "[t]he fact that the upper limit of the term "high frequency" is not defined . . . does not render the term indefinite").[12] Here, the Court finds that a POSITA can discern the scope of Plastipak's patent claims with reasonable certainty, because the measurements are limited by the design and what would be physically possible.[13] As construed *supra* by the Court, the "or less" claim term refers to any value below the specified upper boundary, subject to an inherent lower boundary that is attainable. First, the claim language specifies that a bottleneck falling within the scope of the patent must include: (1) a tamper evident formation, (2) a support flange, and

[12] The *Nautilus* standard does not "render all of the prior Federal Circuit and district court cases inapplicable." *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1381 (Fed. Cir. 2015). All that is required under the *Nautilus* standard is that a skilled artisan understand the scope of the claims. *Id.* Accordingly, the Court considers both pre-*Nautilus* and post-*Nautilus* cases with equal force under the *Nautilus* standard.

[13] This Court notes that the question of whether the specification teaches a POSITA how to reach the inherent lower boundary, attainable by Plaintiff, without undue experimentation is a question of enablement that should be resolved at the summary judgment stage or by a jury. *See FS.com Inc. v. Int'l Trade Comm'n*, 65 F.4th 1373, 1375 (Fed. Cir. 2023) (noting that for purposes of enablement, "the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation"); *see also Dow Chemical Co.*, 809 F.3d at 1226 (Fed. Cir. 2015) (noting that "factual issues, like . . . enablement" can be left to a jury).

(3) threads—the necessary, specified structural components. *See* Dkt. 1, Ex. 3, col. 5 ("What is claimed is . . . a neck portion including . . . threads positioned below the dispensing opening; a tamper-evident formation positioned below the threads; and a support flange positioned below the tamper-evident formation, the support flange having an upper surface."). Next, the claim terms inform that any height or weight value falling under the specified "X or less" boundaries is within the scope of the patents, but that the smallest possible measurement must still be able to support the design. *See id.*, Ex. 3, col. 5 ("the vertical distance from the top of the dispensing opening to the lower surface of the support flange is 0.450 inches or less"). Thus, a POSITA would be able to define the lower limits of the claim range by determining what would be the smallest possible construction of the neck finish with the required structural components.

For the purposes of definiteness and validity, the Court again finds it unnecessary to define the lower boundaries of the "or less" terms with mathematical precision. *See Guangdong Alison Hi-Tech Co. v. Int'l Trade Comm'n*, 936 F.3d 1353, 1359 (Fed. Cir. 2019) ("explain[ing] that 'a patentee need not define his invention with mathematical precision in order to comply with the definiteness requirement'" (quoting *Sonix Tech. Co. Publ'ns Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017))). The conclusion that a lower boundary exists based on the patents' requirements of necessary structural components is sufficient to inform a skilled artisan of the scope of Plaintiff's claims. *See Integrated Production Services, Inc. v. Production Control Services, Inc.*, 2013 WL 4647316, at *19 (S.D. Tex. Apr. 17, 2013) (noting that "[a]s long as the patent contains some objective criteria" for the limits of the patent, "the claim is not indefinite"). Here, the construction and interpretation of the patent is limited by the dimensions of each part of the neck finish. *See* Dkt. 159 at 15 (noting that "[w]hen a neck finish satisfies all the structural requirements of the claims . . . its dimensions and weight fall within the claimed ranges (e.g., the X dimension is 0.450

inches or less)"). Here, a POSITA would be able to determine measurements "precise enough to afford clear notice of what is claimed" in the patent claims. *Nautilus*, 572 U.S. at 909. Accordingly, the Court finds that a POSITA can discern, with reasonable certainty, the scope of the claims in the challenged patents, and that the patents are not invalid for indefiniteness.

V. CONCLUSION

In sum, the Court construes the claim terms of "or less" to include an inherent lower boundary based on the smallest possible physical construction of the neck finish. As a result, Plaintiff's claims are not invalid for indefiniteness as a POSITA would reasonably understand the patent claim.

For the forgoing reasons, the Court hereby DENIES the Defendant's Motion for Claim Construction and ORDERS as follows:

1. The claims are constructed as following: all claim terms involving "or less" are constructed to include any value below the specified upper boundary, subject to an inherent lower boundary, physically attainable, due to the existence of necessary, specified structural components.
2. The disputed claims are not invalid for indefiniteness under 35 U.S.C. § 112.

The Court will issue a scheduling order setting deadlines for summary judgment promptly.

The Clerk is directed to forward copies of this Memorandum Opinion and Order to all counsel of record.

It is SO ORDERED.

Alexandria, Virginia
June 27, 2025

/s/
Rossie D. Alston, Jr.
United States District Judge